REMARKS

Claims 1 to 6 are under consideration in the application. Claims 7 to 9 have been withdrawn from consideration due to a restriction requirement.

Restriction Requirement

In response to the restriction Requirement, applicants hereby affirm the election, with traverse, of the claims of Group I, i.e., claims 1 to 6, for further prosecution in this application.

The election is made without prejudice to the filing of a divisional application directed to the subject matter of the non-elected claims.

This election is made with traverse because the present application is a 35 U.S.C. §371 national stage of PCT/JP03/02672. Therefore PCT unity of invention rules apply. Claims 1 to 6 are directed to a steel sheet. Claims 7 to 8 are directed to a method for manufacturing the steel sheet. See 37 C.F.R. §1.475(b)(1).

§103

Claims 1 to 6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Japan No. 2002-80934.

This rejection is respectfully traversed.

The Present Invention

The present invention provides a steel sheet for vitreous enameling excellent in workability, aging properties and enameling properties, where the steel containing, C: 0.0050% or less, Si: 0.50% or less, Mn: 0.005 - 1.0%, P: 1 x (B-11/14 x N) - 0.10%, S: 0.080 or less, Al: 0.050% or less, N: 0.0005 - 0.020%, B: 0.60 x N - 0.020%, O: 0.002 - 0.080%, and the balance being Fe and unavoidable impurities, and the steel sheet further containing simple or compound nitrides having a diameter of 0.02 to 0.50 μm which contain B or Al, and having the average

diameter of 0.080 μm or larger, and the proportion of the number of the nitrides of 0.050 μm or smaller in diameter to the total number of nitrides being 10% or less.

Further, the steel sheet claimed in the present invention satisfies the following expressions:

$$\text{(the amount of N existing as BN) / (the amount of N existing as AlN)} \geq 10.0$$

$$\text{(the amount of N existing as BN) / (N content)} \geq 0.50$$

The steel sheet of the present invention is produced by a process comprising the steps of retaining a slab in the temperature ranges from 900 - 1100°C (Retained Temperature range 1) for 300 min. or longer before commencing hot rolling, thereafter retaining it in a temperature range not less than 50°C higher than said retained temperature (Retained Temperature Range 2) for 10 to 30 min., then cooling it to a temperature range not less than 50°C lower than said retained temperature (Retained Temperature Range 3) at a cooling rate of 2°C/sec. or less; retaining it in said Retained Temperature Range 3 for 10 min. or longer; and thereafter commencing hot rolling, for controlling a diameter of simple or compound nitrides.

Patentability

The technology disclosed in JP-A-2002-80934 ("JP '934") discloses a steel sheet similar to the steel compositions according to the present invention. However, JP '034 does not disclose or suggest the combination of the nitride diameters and nitride distributions.

The production process of JP '934 comprises hot rolling a slab at a temperature range of 1000 - 1150°C and coiling at a temperature of 650 - 750°C and cold rolling with a reduction of 60% or more and annealing at a temperature more than the recrystallization temperature, and skinpass rolling with a reduction rate of 5% or less, which does not result in the steel sheet of the present invention.

In the present invention, the diameters of the simple or compound nitrides and the nitride distribution are the result of the production process and cannot be obtained by JP '934.

As described above, the steel sheet of the present invention produced by the specific production conditions defined in present invention is quite different from the technology disclosed or suggested in JP '934. JP '934 does not result in a steel sheet having the combination of nitride diameters and nitride distributions of the present invention.

It is therefore submitted that claim 1 to 6 are patentable over Japan No. 2002-80934.

CONCLUSION

It is submitted that in view of the foregoing remarks, the application is now in condition for allowance. It is therefore respectfully requested that the application be allowed and passed for issue.

Respectfully submitted,

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